CLEMATIS MOREFIELDII (RANUNCULACEAE) NEW TO TENNESSEE

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ABSTRACT

Clematis morefieldii (Morefield's leather flower, Huntsville vasevine), a federally endangered species, is documented for the flora of Tennessee for the first time. Eighteen plants were discovered along a small rocky ravine positioned on the lower slopes of the western escarpment of the Cumberland Plateau in Franklin County, Tennessee. A general description of the habitat and associated flora is included.

RESUMEN

Clematis morefieldii (flor de cuero de Morefield,), especie en peligro, se documenta para la flora de Tennessee por primera vez. Se descubrieron dieciocho plantas a lo largo de un pequeño barranco en las laderas inferiores del escarpe occidental del Cumberland Plateau en Franklin County, Tennessee. Se incluye una descripción general del hábitat y de la flora asociada.

INTRODUCTION

Clematis morefieldii Kral (Morefield's leather flower, Huntsville vasevine) is a federally endangered species previously thought to be endemic to Madison and Jackson counties, Alabama (Kral 1987; USFWS 1992; Pringle 1997). This relatively recently described species (Kral 1987) is similar to the widespread *C. viorna* but differs from all variants of that species in the cobwebby tomentose to villous pubescence of its stems, and in having bracts at or very near the base of the peduncle rather than well above the base (Pringle 1997). *Clematis morefieldii* also usually differs from *C. viorna* in having more flowers clustered in the leaf axils on shorter peduncles, in its sepals more pinkish and greenish-tinged, and abaxial leaf surfaces more densely pubescent (Kral 1987).

As of 2003, *C. morefieldii* had been documented from ca. 10 populations, and currently at least two of these (including the type locality) are considered extirpated. All known *C. morefieldii* sites occur along the dissected western escarpment of the Cumberland Plateau in rocky limestone woods on mostly south or southwest-facing slopes. These sites are typically dominated by *Juniperus virginiana* L. and various hardwood species characteristic of basic soils, including *Cotinus obovatus* Raf., which is a key indicator species for *C. morefieldii* (Kral

1987). This habitat type, referred to by Kral (1987) as the *Cotinus* association, is restricted to the lower slopes of the western escarpment of the Cumberland Plateau in northeastern Alabama and southeastern middle Tennessee. Kral (1987) suggested that further field exploration of suitable habitats within this community type in Alabama and Tennessee could result in the discovery of additional populations.

In spring 2003, we began searching for *C. morefieldii* in southeastern middle Tennessee close to the nearest known Alabama population of *C. morefieldii*. On 5 Jun 2003, we discovered a small population of *C. morefieldii* in Franklin County, Tennessee ca. 12.5 km northeast of the nearest Alabama population. This is the first report for *C. morefieldii* from Tennessee.

Voucher specimen: **Franklin Co.:** ca. 4.2 mi SE of Huntland (Beans Creek Quad), SE of Motlow Cove in headwaters of Wilhite Creek, N side of Blooin Hollow, growing along small seasonal stream in rocky limestone woods, 5 Jun 2003, *D. Estes & C. Fleming 04795* (TENN).

DISCUSSION

The Franklin County, Tennessee site is on private property approximately 6 km ESE from the town of Huntland on the dissected western escarpment of the Cumberland Plateau in the Elk River watershed of the Tennessee River Basin. The population is located along the lower portion of a SSW-facing slope over Monteagle limestone at an elevation of ca. 347 m (1140 ft). Eighteen plants, one in flower and one with immature fruit, were found. Most of the vines were 0.5 m or less in length and apparently damaged by insect herbivory. The individuals were scattered along a 20 m reach of a wet weather conveyance 1–2 m in width, growing both along the banks and among the boulder substrate within the channel. The surrounding forest contained the following associates: *Acer saccharum* Marsh., *Carya carolinae-septentrionalis* (Ashe) Engl. & Graebn., *Celtis tenuifolia* Nutt., *Fraxinus americana* L., *F. quadrangulata* Michx., *Quercus muehlenbergii* Engelm., *Juniperus virginiana* L., *Cotinus obovatus*, *Cercis canadensis* L., *Ostrya virginiana* (P. Mill.) K.Koch, *Forestiera ligustrina* (Michx.) Poir., *Hamamelis virginiana* L., *Hypericum frondosum* Michx., *Rhus aromatica* Ait., *Bumelia lycioides* (L.) Pers., *Symphoricarpos orbiculatus* Moench, and the rare *Neviusia alabamensis* Gray and *Viburnum bracteatum* Rehd. The most common herbaceous taxa observed were *Dasistoma macrophylla* (Nutt.) Raf., *Polymnia canadensis* L., *Scutellaria ovata* Hill, and *Solidago auriculata* Shuttlw. ex Blake.

Several species considered rare in Tennessee were discovered growing with or adjacent to the *Clematis* population, including a small population of the state-endangered (TNHP 2004) *Viburnum bracteatum* (*Estes & Fleming 04788* TENN). One shrub was growing at the edge of the wet weather conveyance containing *C. morefieldii* and another group of 15–20 individuals were ca. 100 m

away along the rocky banks of a nearby stream. This species is extremely rare throughout its range and is endemic to a small area centered on the Cumberland Plateau of northeastern Alabama, northwestern Georgia, and southeastern Middle Tennessee. This is the second reported Tennessee occurrence for *V. bracteatum* (C. Bailey, Tennessee Natural Heritage Program, pers. comm.). Outside of Tennessee, the species is only known from ca. eight extant populations. There is one each in Floyd and Walker counties in Georgia (J. Allison, Georgia Natural Heritage Program, pers. comm.), and six documented populations in Alabama (Etowah, Jackson, and Madison counties), although one of these has not been observed in more than 50 years (M. Barbour, Alabama Natural Heritage Program, pers. comm.).

Another significant find at the site was a small population of the state-threatened (TNHP 2004) *Neviusia alabamensis* (*Estes & Fleming 04790* TENN). Approximately 30–40 stems were located along a rocky streambank in association with *C. morefieldii*. The *Neviusia*, like the *Clematis*, was visibly impacted by herbivory. Our collection represents a new county record for *N. alabamensis* in the state and the first report for the species from the Tennessee portion of the Cumberland Plateau; however, other populations are known from the Cumberland Plateau of Alabama (Long 1989; D. Estes, pers. obs.) and Georgia (Long 1989). There are nine previously reported Tennessee populations (C. Bailey, Tennessee Natural Heritage Program, pers. comm.) within the Central Basin Section or at the transition zone between the Central Basin and Highland Rim Sections of the Interior Low Plateaus (ILP) Physiographic Province (Horn & Somers 1981; Long 1989). The Franklin County station is ca. 18 km southeast of the nearest previously known Tennessee population in Moore County.

Other rare taxa tracked by the Tennessee Natural Heritage Program (2004) found within 100 m of the *C. morefieldii* site were *Juglans cinerea* L. (Tennessee threatened), *Lonicera dioica* L. (Tennessee threatened), *Solidago auriculata* (Tennessee threatened), and *Cotinus obovatus* (Tennessee special concern). The *Cotinus* and *Solidago* were common components of the forest while only one individual was found of *J. cinerea* and *L. dioica*, respectively.

SUMMARY

The recent discovery of *C. morefieldii* in Tennessee not only represents a state record but also extends the range of the species by some 12.5 km to the northeast. Recent fieldwork in the area has revealed several sites with suitable habitat for *C. morefieldii* on the western escarpment of Tennessee's Cumberland Plateau from the Alabama state line northeastward to southern Warren County. Systematic surveying in this area might result in the discovery of more populations of the federally endangered Morefield's leather flower as well as a number of other significant rare taxa.

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